

wick. 1871. February 13, "Primitive Civilisation," by E. B. Tylor. March 13 and 20, "The Astronomy of Comets," by Professor Robert Grant. March 27, "War Ships and their Guns," by E. J. Reed. March 3 and 10, "Recent Researches in Physical Science," by W. F. Barrett.

AMONG the lectures to be delivered during next session before the Exeter Literary Society are "Recent Researches in Spectrum Analysis," by Rev. R. Kirwan; "Queer Flames, and what they have to say for themselves," by C. Meymott Tidy; "The Orbs of Heaven," by W. F. Quicke; and "Stonehenge compared with some other megalithic monuments," by Rev. R. Kirwan.

WE have received a prospectus of a new American Scientific Journal, to be called the *American Journal of Microscopy*. It will endeavour to create an elevated taste for microscopic science among the people. It will give full descriptions of the construction and ways of using the various kinds of microscopes and other optical instruments, the selection, gathering, and mounting of the most beautiful and interesting microscopic objects, microscopical diagnosis of diseases, reports of microscopical societies, and, in short, everything pertaining to microscopy. This journal will be ready for subscribers and agents about the 1st of October, and will be issued in neat quarto form of sixteen pages, of suitable size for preserving and binding, printed on fine white paper, in clear type, at one dollar per year. It will be published at Chicago.

WITH respect to the "whale of the bottle-nose species" said to have come ashore at Burntisland, Prof. Turner states that the animal is not one of the toothed whales, but a small whale-bone whale. The plicated belly and the fatty fin on the back, placed it amongst the *Balanopteride* or finner whales. The white baleen, dashed here and there with pink, the form of the skull, and the elongated cruciform breast-bone, proved it to be the *Balanoptera rostrata* or piked whale—the smallest in the baleen whales inhabiting the North Sea. The specific distinction of this cetacean was first established by the late Dr. Robert Knox, from a specimen taken in 1834 in the stake nets at Queensferry, who named it the *Balæna minimus borealis*. Several specimens have since that time been stranded on the coasts of the Firth. Mr. Prentice has, with great liberality, presented the skeleton to the Anatomical Museum of the University of Edinburgh.

MR. W. G. SMITH's "Clavis Agaricinarum," a paper originally presented to the Woolhope Naturalists' Field Club, and already printed in the *Journal of Botany*, will be very acceptable to mycologists in the separate and more complete form in which it is now published. Mr. Smith follows essentially the system of Fries and Berkeley, in dividing the enormous genus of *Agaricus* (numbering 450 British species alone) into five series, termed partly from the colour of the spores, *Leucospori*, *Hyporhodii*, *Dermini*, *Pratelle*, and *Coprinarii*. Each of these five series he then divides into ten sub-genera, distinguished by characters of the hymenophorum, each of the five series of ten sub-genera closely corresponding to every other such series. Out of the fifty sub-genera which would thus be derived, only thirty-two are at present known, the remaining eighteen links in the chain remaining to be discovered. A number of very clear and carefully-executed diagram-plates which are appended will be of great service in rendering intelligible to beginners the principles of the arrangement of this exceedingly difficult genus.

PROF. O. C. MARSH has reprinted from the *American Journal of Science and Arts* several papers of considerable interest of American paleontology; Notice of some fossil Birds from the Cretaceous and Tertiary formations of the United States; Notice of some new Mosasauroid Reptiles from the Greensand of New Jersey; and a description of a new and gigantic fossil Serpent (*Dinophis grandis*) from the Tertiary of New Jersey.

WE are informed from American sources that the Western Union Telegraph Company in America propose to co-operate with the War Department, for the rapid transmission of telegraphic reports of "the operation and reports of storms for the benefit of commerce on our Northern lakes and sea-board." The practical value of the Meteorological information that can thus be rapidly sent across the great continent of America, from the Pacific to the Atlantic, cannot but be very great, and there is every hope that the War department will close with the offer.

SIR RODERICK MURCHISON announced to the Geographical Section of the British Association at Liverpool the receipt of the following telegram relating to the safety of the *Germania*—a little vessel which sailed some time ago on an expedition to the Arctic regions, chiefly at the expense of the German geographers and naturalists:—"Freeden to General Sabine. Kolde-way—wintered in East Greenland, 70°; sledged to 77°. Arrived at Bremen last night. Extensive results—best health. Hamburg, Sept. 12."

THE Consul-general of Chile at Bogota, the capital of Columbia, has written to his government to ask for particulars on the "Baldia" plant, reputed to be a great specific against liver complaint.

THE Economic Society of Guatemala is endeavouring to promote agricultural education there by means of books.

ONE of the most disastrous earthquakes we have lately recorded is that in the large city of Batang, on the Kin-sha river in Tibet. It began on the 11th April, and there were various shocks until the 9th May at 10 A.M., when it shook the whole city, causing a universal conflagration. Above 10,000 people were burnt to death. Several neighbouring villages shared the same fate. Many public buildings were destroyed, including those of the French millionaires. After the great shock others came on, and the people remained camped out for five days.

A SLIGHT earthquake is reported on the 26th July at 11 to 5 P.M., at Managua in Nicaragua, produced it is supposed by the volcano of Momstombe, from which subterranean rumblings were heard nearly every night. The people of Leon state that they have noticed flames and smoke proceeding from the crater. This seems to be the same earthquake that is reported from the neighbouring Republic of San Salvador on the 27th July. There it was strong, and lasted some seconds. On the 28th there was another, at 11.30 A.M., of a more violent character, but no serious damage was done.

ON the morning of the 1st August there was a slight shock of earthquake at Calcutta at about 5 minutes to 10.

THE Arabian Nights are in progress of realisation. Deposed sultans and princesses in disguise are not wanting; and the gold diggings furnish nuggets as large as any holder of a magic lamp can want. Aladdin's jewellery is now under realisation. The Diamond diggings in the Vaal River are the scene of successful venture, and one company in six months has got 22,000/ worth of diamonds. Women and babies are now taken to this scene of fortune, where bands of music, billiard tables, and other accessories of pleasure, have already appeared. Aladdin had not a billiard table when shut up in the cave of diamonds.

THE BRITISH ASSOCIATION

LIVERPOOL, Wednesday

THE number of tickets issued has now increased to 2,800, very considerably more than was expected either by the officers of the Association or by the Liverpoolians. The roll of eminent foreigners is also much larger. In addition to those mentioned in my first letter we have now the company of Prof. Tchebichef, of St. Petersburg, one of the most distinguished of living mathe-

maticians, Prof. Plateau of Bruges, Dr. Anton Dohrn of Jena, Prof. Von Baumhauer of Leyden, and others. Some of these have added greatly to the interest of the sections in which they took part, and have been very warmly received. Dr. Dohrn in particular was greeted with much warmth, from the fact that three weeks ago he was summoned to join the German army and had not since been heard of by his English friends. The statement of a local paper that Prof. Hofmann of Berlin is here is incorrect. A letter was, however, read from him in the Chemical section, soliciting contributions in kind from our chemical manufacturers for the needs of the German hospital service. A large audience met to-day in the Geographical section to hear Lord Milton read his paper on "Railway Routes across America;" and the lecture-room in which the Ethnological sub-section holds its meetings was crammed whilst Sir John Lubbock was discoursing on "Stone Implements from Western Africa." The small and inconvenient Crown Court in St. George's Hall devoted to Section A had a much larger complement than usual while the Rev. F. Howlett read his paper on "Solar Spots," and exhibited his elaborate diagrams, showing the great interest now taken by the public in solar phenomena; although, at the same time, Section G offered a counter attraction, especially to the members connected with the town, in Mr. Mackie's and Sir E. Belcher's papers on "The Unprotected State of Liverpool." The heavy rain and thick fog of yesterday morning have both cleared off, and the weather is again everything that could be desired.

The subject of Spontaneous Generation is undoubtedly the question of the meeting of the British Association for 1870. The title of the paper by Professor Huxley which headed yesterday's list in the department of Zoology and Botany, did not appear to bear directly upon it, and yet it was generally understood that it would reopen the subject. The President's discourse, for he had scarcely a note before him, was a popular account of the mode of development and form of those minute structures which the microscope reveals in such prodigious numbers in infusions containing organic matter, *Penicillium*, *Torula*, *Bacterium*, and *Vibrio*. He adduced arguments in favour of the theory that these various bodies are not distinct organisms, but are different modes of development of the same substance, and a more admirable and luminous exposition, it was generally admitted, has seldom been delivered. In the course of his remarks, Prof. Huxley took occasion to explain the difference between the "Brownian" motion of the molecules of inorganic matter, and the vital motions of living matter, and expressed his conviction that the motions observed by Dr. Bastian in the infusions which had been subjected to long-continued high temperatures, were referable to the former and not to the latter cause. During the discussion which followed, Dr. Bastian entered the room, but when called on by the president of the section, preferred deferring his reply till the following day. This morning Dr. Bastian gave an account of his experiments on the contents of hermetically sealed cases of preserved meats, with which the readers of NATURE are already familiar, and reiterated his conclusion that the facts he had elicited were such as to throw on the Biogenists the burden of proof that life did not really, as was apparently the case, originate *de novo* from lifeless materials. Professor Huxley was not able to be present at this discussion, but a somewhat sharp passage of arms took place between Dr. Bastian and Professor Tyndall, each maintaining his well-known view respecting the atmospheric germ theory. The reply of Prof. Tyndall, "Prof. Huxley's lieutenant," as he was described by the president of the section, was not generally accepted as conclusive, in consequence of his apparently not having made himself thoroughly acquainted with the facts of the series of experiments performed by Dr. Bastian.

Several of the sections had got through their programme of papers yesterday, but the majority sat this morning, and Section D even intruded into the time fixed for the meeting of the General Committee which concluded the business of the meeting. In opening the business of the committee, Professor Huxley remarked that whatever reports are issued in the name of the committee of recommendations, it should be clearly understood that they are issued without any sanction of the Association, and that the responsibility of these reports, and the conclusions that may be drawn from them, rest entirely with the authors of the reports. The Association does not for one moment endorse views on subjects on which persons of eminence may hold different opinions. All that the Association is responsible for, is to place in a position for making reports gentlemen who are competent to make them; what these gentlemen say is entirely on their own responsibility. Grants were then ordered for various purposes, as recommended by the committee of recommendation, in accordance with the list which will be found in another column. A number of resolutions not involving grants of money, which came up from the various sections, were also passed.* The most important among these were:—A resolution on the subject of Vivisection, and appointment of a committee, from Section D; a resolution, brought up from Sections A and B, requesting the Council to co-operate with the Councils of the Royal and Astronomical Societies urging on the Government the propriety of reconsidering their refusal to aid in the observation of the approaching Total Eclipse of the sun by the grant of a vessel; a resolution from Sections A, B, and G, with reference to the proposed foundation by the Government of an Engineering College, to the effect that it is undesirable that any fresh grants should be made for purposes of scientific instruction until the Royal Science Commission has reported. The only resolution which excited much discussion was one from Section F in favour of the adoption of a compulsory metric system of weights and measures. An amendment was moved by Mr. Hawksley, and seconded by Professor Rankine, that the recommendation should be limited to the adoption of the metric system for international purposes, on the ground that a binary system is now, and always will be, the mode adopted by uneducated persons in all countries for their own purposes, as being the simplest. The amendment was adopted by a considerable majority.

Saturday

Those who were present at the meeting of the British Association which has just concluded its sittings, speak of it as presenting some points of favourable contrast with preceding meetings. There were still a good many papers presented of a purely technical character, which would have been far more suitable for the transactions of one of the learned societies, and which were perfectly unsuited for the miscellaneous audience collected to hear them. On the other hand there were not a few, perhaps a larger number than on previous occasions, which treated purely scientific subjects in a philosophical manner, calculated not only to interest but to enlarge the minds of all who had the pleasure of listening to them. I may illustrate my remark by reference to one division only, Section D. A glance over the titles of the papers read in this section will at once suggest several belonging to the former category. On the other hand, Dr. Brown-Sequard's paper on "Various Alterations of Nutrition due to Nervous Influence," and Prof. Flower's on the "Connection of the Hyoid Arch with the Skull," though treating of subjects belonging to pure science, were discussed in a manner which carried with them a non-scientific audience, who cannot have failed to carry away some ideas altogether new to them. In the same manner Prof. Huxley's

* Owing to these resolutions not having been yet sanctioned by the Council, we are compelled to defer their publication for the present.

"History of the Development of the Lowest Forms of Infusorial Life" was a model of clearness and succinctness; and the President himself paid a compliment to Mr. Bennett's paper, which followed, on the "Theory of Natural Selection looked at from a Mathematical Point of View," as the first attack on the hypothesis conceived in a philosophical spirit, and such a paper as it is the special object of the Association to bring out. The great question of the meeting, that of "Spontaneous Generation," has already occupied sufficient space in our columns; we look to the Liverpool meeting as the starting-point from which the discussion must in future be carried on in a truly philosophical and inductive spirit, free from the dogmatism which has hitherto surrounded it.

The attitude of Liverpool towards the Association has been somewhat of a puzzle to its members. If we were to judge from the remarks heard in the streets and from the ordinary visitors at the hotels, and the "intelligent policemen" who were posted here and there to direct the wandering visitor, we might suppose that a meeting of the British Association was a monthly occurrence in Liverpool, so utterly indifferent did they appear to it. The prevalent opinion appeared to be that we were another Church Congress in some sort of disguise. That there is a public in Liverpool who watched its proceedings with intelligence and interest was evident; but this, at least, is certain, that such a public has no representative in the Liverpool press. Let any one who wishes to see what the papers say about the Association take up the *Liverpool Courier* of this morning, where they will find a leader devoted to a ponderously jocose reply to an innocent remark of ours last week. "Save us from our friends" was the remark with which we laid down the following comment on the Association:—"The philosophers have come and gone, and Liverpool is at peace. They had a week of tremendous talk—tremendous not only as regards volubility, which is a blight we are well accustomed to in Liverpool, but also as regards the technical ponderosity of the themes. However, it is over at last, and though we entertain the most devout admiration for science and scientific people, a sigh of relief escapes involuntarily as we speed the parting guest. It was impossible that we could live long at the high pressure of the past week. It was more than human nature—of course we except scientific human nature, which is on a higher round in the Darwinian ladder than we poor cotton-dealers and traffickers—could bear for another seven days. The philosophy was too exalted for our earthy intellects, and we are bound to confess that the local savans—we have quite a battalion of the genus, such as they are—manifested signs of weariness under the tempest-torrent of imported intelligence. Of course it was right that the personages who hang on to the skirts of philosophy should be members of the British Association; but what a change between the first and the last day! Mathematics and biology were a gay pastime in the initial stage, the wise men and the learned ladies were positively vivacious over the germ-theory, and not a few were prepared to enter the lists against any opponent of abiogenesis. But this enthusiasm could not be sustained, for there was no basis of real intelligent interest, and the animation waned as the stream of science still flowed on."

The reporter of the *Courier* clearly found that he was getting beyond his depth, and wisely absented himself from the sittings during the last few days, or he would have known that the interest showed no signs of abatement. I venture to predict that those Liverpudlians for whom the meeting was not altogether "caviare" have been so well pleased with the success of the meeting that in due time we shall have another invitation to pay the town a visit, when I hope large numbers of those who have now dispersed will again meet.

It will be seen that the annual grant of 600*l.* for the purposes of the Kew Observatory has only two more years

to run. We must trust that the additional means thus placed at the disposal of the Council will be applied to purposes directly connected with the real advancement of science, and will not be frittered away in bricks and mortar.

After holding the concluding general meeting which followed that of the general committee, the visitors to the Association rapidly dispersed; a small proportion, however, staying to avail themselves of one or other of the excursions which were arranged for the Thursday. In this respect next year's meeting at Edinburgh will afford a much larger scope for the lovers of the picturesque. B.

RESOLUTIONS OF THE GENERAL COMMITTEE

Applications for Reports and Researches not involving Grants of Money

That Prof. R. B. Clifton, Mr. Glaisher, Mr. Huggins, Dr. Matthiessen, Prof. W. Hallowes Miller, Dr. Balfour Stewart, Mr. G. Johnstone Stoney, Lieut.-Col. Strange, and Sir J. Whitworth, Bart., be a Committee for the purpose of reporting on Metric Standards, in reference to the communication from Prof. Jacobi, appended hereto:—

"The Academy of Sciences of St. Petersburg, observing that the Standard Metric Weights and Measures of the various countries of Europe and of the United States, differ by sensible, though small, quantities from one another, express the opinion that the continuance of these errors would be highly prejudicial to science. They believe that the injurious effects could not be guarded against by private labours, however meritorious, and they have therefore recommended that an international commission be appointed by the countries interested to deal with this matter. They have decided to bring the subject before the Russian Government, and have appointed a Committee of their own body, who have drawn up a careful Report containing valuable suggestions; and they have deputed Prof. Jacobi to lay this Report before the British Association, and to request the Association to take action in reference to it."

That Dr. Anton Dohrn, Prof. Rolleston, and Mr. P. L. Sclater be a committee for the purpose of promoting the foundation of zoological stations in different parts of the world, recognising the foundation of a zoological station at Naples as a decided step in this direction; that Dr. Anton Dohrn be the Secretary.

That the committee of Section D be requested to draw up a statement of their views upon Physiological Experiments in their various bearings, and that this document be circulated among the members of the Association.

That the said committee be further requested to consider from time to time whether any steps can be taken by them or by the Association, which will tend to reduce to its minimum the suffering entailed by legitimate physiological inquiries, or any which will have the effect of employing the influence of this Association in the discouragement of experiments which are not clearly legitimate on live animals.

Resolution passed by the Committee of Section D (Biology):

"That the following gentlemen be appointed a Committee for the purpose of carrying out the suggestion on the question of Physiological Experiments made by the General Committee:—Professor Rolleston, Professor Lawson, Professor Balfour, Dr. Gamgee, Professor M. Foster, Professor Humphry, Professor W. H. Flower, Professor Sanderson, Professor Macalister, and Professor Redfern; that Professor Rolleston be the Secretary, and that they be requested to report to the Committee."

Involving Application to Government

That Sir R. I. Murchison, Bart., Sir Charles Lyell, Bart., Mr. Findlay, and Admiral Sir John D. Hay be a committee for the purpose of bringing to the notice of the Commissioners of the Admiralty the importance of revising the survey of the west coast of South America, with a view to ascertaining what changes have taken place in the levels since the recent great earthquakes on that coast; that Mr. Clements Markham be the secretary.

That Prof. Jevons, Mr. R. Dudley Baxter, Sir John Bowring, Mr. J. T. Danson, Mr. James Heywood, Dr. W. B. Hodgson, and Prof. Waley be a committee for the purpose of urging upon her Majesty's Government the expediency of arranging and tabulating the results of the approaching census in the three several parts of the United Kingdom in such a manner as to admit of ready and effective comparison; that Mr. Edmund Macrory be the secretary.